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A STUDY OF EARLY SERVICE CAREER MOS SHIFTS FOR PERSONNEL ALLOCA--ETC(U)
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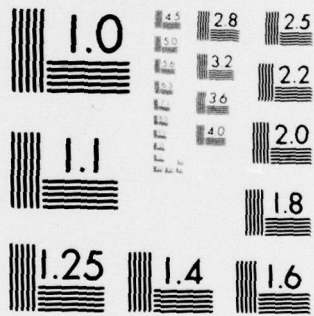
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RESEARCH MEMORANDUM 63-11

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Research Memorandum 63-11

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A STUDY OF EARLY SERVICE CAREER MOS SHIFTS FOR
PERSONNEL ALLOCATED TO INFANTRY MOS.

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A STUDY OF EARLY SERVICE CAREER MOS SHIFTS FOR PERSONNEL ALLOCATED TO INFANTRY MOS

BACKGROUND

In 1957, USCONARC expressed concern that the manpower being supplied to combat divisions was of lower quality than that distributed to other elements of the Army. Subsequently, APRO conducted a study which found that combat arms personnel were approximately four points lower in aptitude area scores than the rest of the Army (Boldt and Seidman, 1960). This study further indicated that support personnel in combat divisions were of roughly equal ability to the Army as a whole. As a result of these determinations, it was concluded that the Army needs a more adequate distribution system to improve the level of personnel going to the combat arms. APRO undertook such allocation procedures (Boldt, 1962).

It has been indicated by DCSPER, Distribution Division, however, that traditionally the proportion of individuals retained in MOS to which they were allocated is not high, i.e., a manpower shortage constantly exists in combat divisions, even though a sufficient number of men are being fed into these divisions. This lack of retention of personnel in allocated MOS would severely limit the efficacy of optimal allocation procedures. Consequently, APRO initiated the present survey in August 1960 to study the early service career MOS patterns of personnel allocated to infantry MOS. A second study, to be reported separately, is concerned with retention of personnel in certain non-infantry MOS.

STATEMENT OF PROBLEM

The general aim of the study was to evaluate the retention of personnel, both quantitatively and qualitatively, in MOS 111 and 112. The specific service career time period covered by the study was that beginning with entry into service and extending approximately two years subsequent to entry. During this time frame, four service career points were examined: (1) DA allocated MOS; (2) Advanced Individual Training MOS; (3) First Duty MOS; and (4) Second Duty MOS.

The specific objectives of the study were to:

1. Examine the extent and patterns of MOS shifts at the service career points;
2. Determine the distributions of time spent in First Duty and Second Duty MOS;
3. Determine the nature of the relationship between personnel shifts and Army Classification Battery (ACB) scores.

SAMPLING AND PROCEDURE

A random 10 percent sample was drawn from all uncommitted personnel allocated by Replacement Branch, TAGO to MOS 111 and 112 from 1 July to 31 December 1959. Blank Forms 20 were mailed to the last known military addresses of the 912 enlisted men comprising the sample, as well as to the Army Records Center, St. Louis, for EM who had been separated from service or for whom the last military address was unknown, with the request that the following items of information be completed: MOS Code, Enlisted or Inducted, Prior Military Experience, Assignment Limitations, Aptitude Tests, Other Tests, Military Education, Foreign Service, Enlisted or Volunteered for, Classification in MOS, Record of Assignments. Table 1 presents a description of the sample returns.

Table 1

DISTRIBUTION OF RETURNS TO MAILED FORMS

Nature of Return	Reason for Elimination	N	% Return
Usable	---	636	69.7
Unusable	Total	173	19.0
	Insufficient Information	48	5.3
	Enlisted or Volunteered for		
	Career group enlistees	17	1.9
	Airborne volunteers	32	3.5
	Area enlistees	16	1.8
	Assignment Limitations		
	Aliens	32	3.5
	Others	19	2.1
	Prior Military Service	9	1.0
Unreturned	----	103	11.3
Total Forms Mailed	----	912	100.0

It may be seen that of the 912 forms mailed out, there was a 69.7% usable return. Of the remaining forms, 11.3% were not returned, 5.3% did not contain sufficient information to be included in the survey, and 13.8% were excluded because they revealed enlistment commitments which affected later career progressions, assignment limitations (e.g., alien cannot be allocated to an MOS requiring security clearance), or prior military service where such service influenced later assignments.

STATISTICAL ANALYSES AND RESULTS

EXTENT AND PATTERN OF MOS 111 SHIFTS. The first breakout of data was concerned with determining the extent and pattern of MOS shifts at the four service career points. The usable returns were divided into four groups comprised of those EM who: (1) did not go to AIT in the MOS to which they were allocated (MOS 111); (2) received AIT in MOS 111 but went to another MOS for First Duty; (3) had Advanced Individual Training and First Duty in MOS 111 to which they were allocated, but changed MOS for Second Duty; and (4) held the same MOS for the period covered by this survey.

The results of this four-way breakout are contained in Figure 1. At the top of Figure 1 is indicated the 307 EM originally allocated to MOS 111. The horizontal lines connected to the center vertical line represent the service career points where MOS shifts occur. It can be observed that of the original N of 307, shifts from DA allocated MOS 111 occurred for 2.9% for Advanced Individual Training, 32.9% for First Duty, 16.6% for Second Duty, while 47.6% remained in MOS 111 for the two-year period covered by the survey.

For those EM who left MOS 111 in First and Second Duty MOS, Figure 1 indicates the occupational areas receiving these personnel. It is apparent that the large majority of EM who shifted MOS did not remain with infantry. However, a fact not revealed in Figure 1 is that 30 of the 101 individuals who left MOS 111 for First Duty returned to MOS 111 for Second Duty. Further, of those 19 individuals who shifted to MOS 112 for First Duty, 7 returned to MOS 111 for Second Duty while 9 remained in MOS 112.

DISTRIBUTION OF TIME SPENT IN FIRST AND SECOND DUTY MOS. A second breakout of the data was performed to obtain the distribution of time spent in First and Second Duty MOS for personnel in groups one, two and three. The time spent in an MOS was considered in terms of four categories: (1) one to three months; (2) three to six months; (3) six months to one year, and (4) over one year. No analysis was made for group four since EM within this group remained in their DA allocated MOS for the period covered by the survey.

Table 2 presents separately for groups one, two, and three, the number and percentage of cases falling within each of the four time categories in First and Second Duty MOS. No breakout is reported for group one in Second Duty MOS because of insufficient information. It may be seen from the total distribution of cases that individuals tended to spend more than six months in both their First Duty and Second Duty MOS.

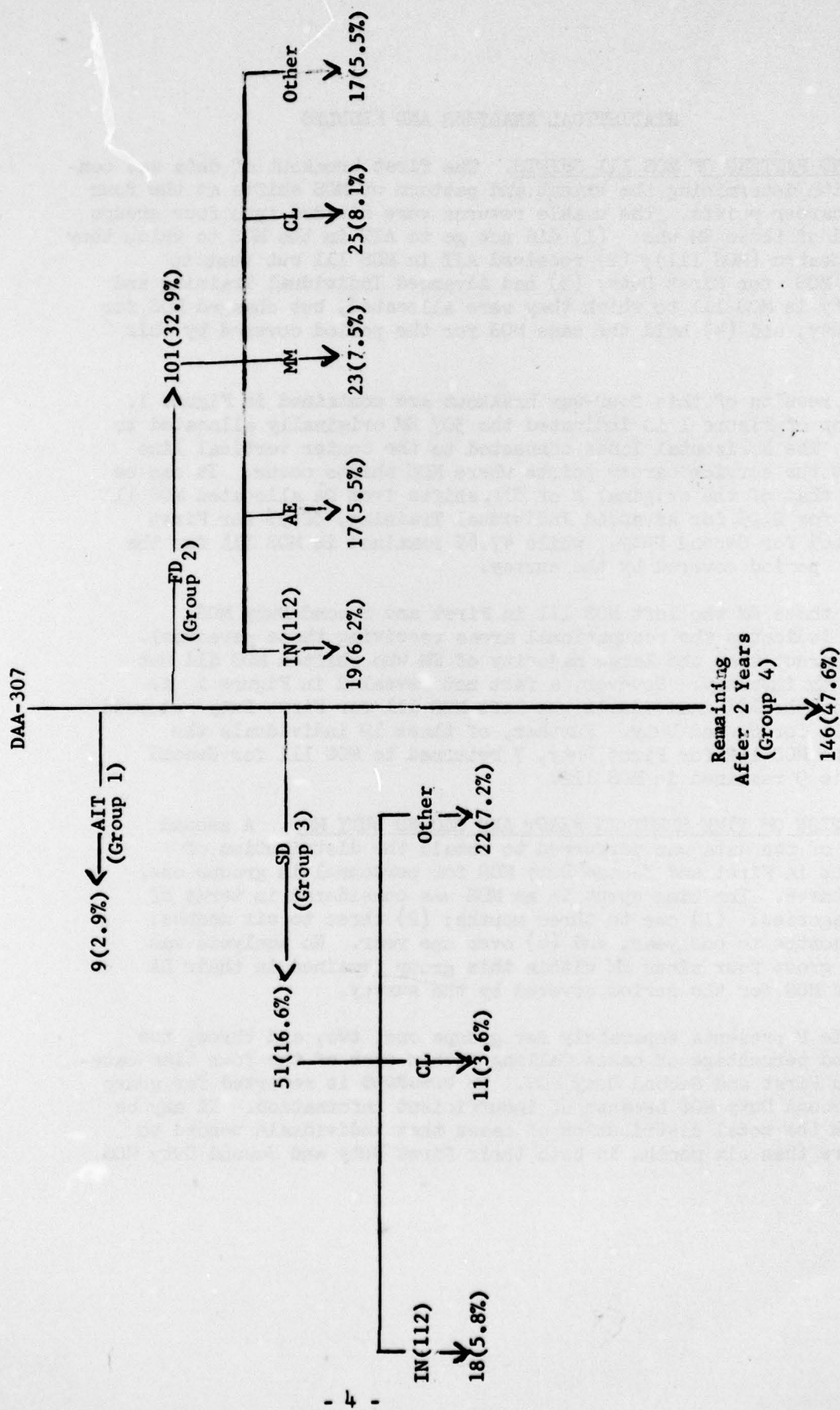


Figure 1. Number and percentage of EM leaving MDS 111 at early service career points.

Table 2

DISTRIBUTION OF TIME SPENT IN FIRST DUTY AND SECOND DUTY BY
EM ALLOCATED TO MOS 111

	GROUPS							
	1		2		3		TOTAL	
	N	%	N	%	N	%	N	%
Time in FD MOS								
1-3 mos	1	11.1	14	13.9	16	31.4	31	19.3
3-6 mos	2	22.2	19	18.8	11	21.6	32	19.9
6 mos-1 yr	2	22.2	21	20.8	21	41.2	44	27.3
Over 1 yr	4	44.4	47	46.5	3	5.9	54	33.5
Total	9	99.9	101	100.0	51	100.1	161	100.0
Time in SD MOS								
1-3 mos	a	a	6	10.9	6	11.8	12	11.3
3-6 mos			11	20.0	14	27.5	25	23.6
6 mos-1 yr			24	43.6	14	27.5	38	35.8
Over 1 yr			14	25.5	17	33.3	31	29.2
Total			55	100.0	51	100.1	106	99.9

*Insufficient data to allow analysis.

Two further analyses were performed to ascertain whether there was a significant difference between the distributions of time spent in MOS 111 vs time spent in MOS other than 111. To determine whether those EM who shifted from MOS 111 for First Duty differed in time spent in First Duty from those EM who took First Duty in MOS 111, a Chi Square was computed between the distributions of time spent in First Duty for groups two and three. A Chi Square of 27.49 was obtained which was significantly different from zero at the .001 level at three degrees of freedom. Inspection of the two distributions disclosed that EM taking First Duty in MOS 111 tended to spend a shorter time in First Duty than did those individuals taking First Duty in an MOS other than MOS 111.

To determine whether the same group of EM differ in time spent in MOS 111 vs. in an MOS other than MOS 111, a Chi Square was computed between the First Duty and Second Duty time distributions of group three. The obtained Chi Square of 16.10 was significant beyond the .01 level at three degrees of freedom. The time distributions in Table 2 indicate that individuals in group three remained longer in Second Duty (other than MOS 111) than they did in First Duty (MOS 111). Time spent in First Duty might have served as a restriction on time spent in Second Duty, since the time period covered by the survey was approximately two years. Despite this, the significant difference reported above was obtained in the direction of longer time spent in Second Duty for group three.

RELATIONSHIPS AMONG MOS SHIFTS AND ACB SCORES. A third analysis for MOS 111 was concerned with the nature of the relationships among MOS shifts and Army Classification Battery scores. For each individual in the sample, the aptitude area score corresponding to the MOS held for First Duty and Second Duty was recorded as was the individual's highest aptitude area score. Table 3 contains the average DA allocated, First Duty, Second Duty, and high scores for each of the four previously described groups.

The average total DA allocated scores did not vary greatly for the four groups. The average aptitude area score for the MOS entered after leaving MOS 111 was not appreciably higher than that for MOS 111--group two changed from 99.8 to 101.4 and group three from 104.0 to 107.3. This finding was true independent of the point in service career when the shift occurred. Of those leaving MOS 111 after AIT (group two), the lower aptitude people appear to be shifting to Artillery (average IN score of 88.5), while the higher aptitude individuals entered the Clerical area (average IN score of 106.7). Similarly for those taking First Duty in MOS 111 but entering a different MOS for Second Duty (group three), the higher aptitude individuals were seen to shift to the Clerical Area (average IN score of 107.8). On the basis of average high scores, the Clerical Area was again the recipient of the highest aptitude people.

EXTENT AND PATTERN OF MOS 112 SHIFTS. The number and percentage of EM leaving MOS 112 at early service career points is contained in Figure 2. It can be observed that of the original N of 329, shifts occurred for 6.7% for AIT, 49.2% for First Duty, 16.7% for Second Duty, while only 27.4% remained in MOS 112 for the two-year period covered by the survey. It may be seen, however, that of those EM who shifted MOS, a large percentage tended to remain within the combat areas (IN or AE), especially within Infantry (MOS 111 or 112). A further breakout of Second Duty MOS for those 78 EM who took First Duty in MOS 111, is contained in Figure 2. The breakout indicates that 44 of the EM remained in their First Duty MOS of 111 and did not have a Second Duty MOS (for the period covered by the survey), 26 EM returned for Second Duty to the MOS to which they were allocated (MOS 112), while 8 EM took Second Duty in other MOS.

Table 3

MEAN APTITUDE AREA SCORES FOR ALL GROUPS IN THE
SUBSAMPLE ALLOCATED TO MOS 111

Group	Aptitude Area Corresponding to Occupational Area Entered Upon Departure From MOS 111	ACB Scores				N
		DAA	FD	SD	High Score	
1	Total	101.6	100.1	b	111.1	9
2	Total	99.8	101.4	99.8	108.8	101
	Infantry (MOS 112)	99.6	99.6	b	110.3	19
	Artillery	88.5	92.5	b	106.5	17
	Motor Maintenance	100.0	102.0	b	109.7	23
	Clerical	106.7	113.9	b	121.3	25
	Other ^a	97.8	98.6	b	108.3	17
3	Total	104.0		107.3	118.5	51
	Infantry (MOS 112)	101.7		101.7	113.8	18
	Clerical	107.8		121.9	129.4	11
	Other ^a	104.0		104.5	116.8	22
4	Total		97.8		109.2	146
TOTAL						307

^aIncludes remaining aptitude areas.

^bNot computed.

DISTRIBUTION OF TIME SPENT IN FIRST AND SECOND DUTY MOS. Table 4 presents separately for groups one, two, and three, the number and percentage of cases falling within each of the four time categories in First and Second Duty MOS. No breakout is reported for group one in Second Duty MOS because of insufficient information. Two analyses were performed to ascertain whether there was a significant difference between the distributions of time spent by EM in MOS 112 vs. time spent in MOS other than MOS 112. To determine whether those EM who shifted from MOS 112 for First Duty differed in time spent in First Duty from those EM who took First Duty in MOS 112, a Chi Square was computed between the distributions of time spent in First Duty for groups two and three. The resulting Chi Square of 25.56 was significantly different from zero at the .001 level at three degrees of freedom. It may be seen by inspection of the two time distributions that EM taking First Duty in MOS 112 tended to spend less time in First Duty than did those EM taking First Duty in an MOS other than MOS 112.

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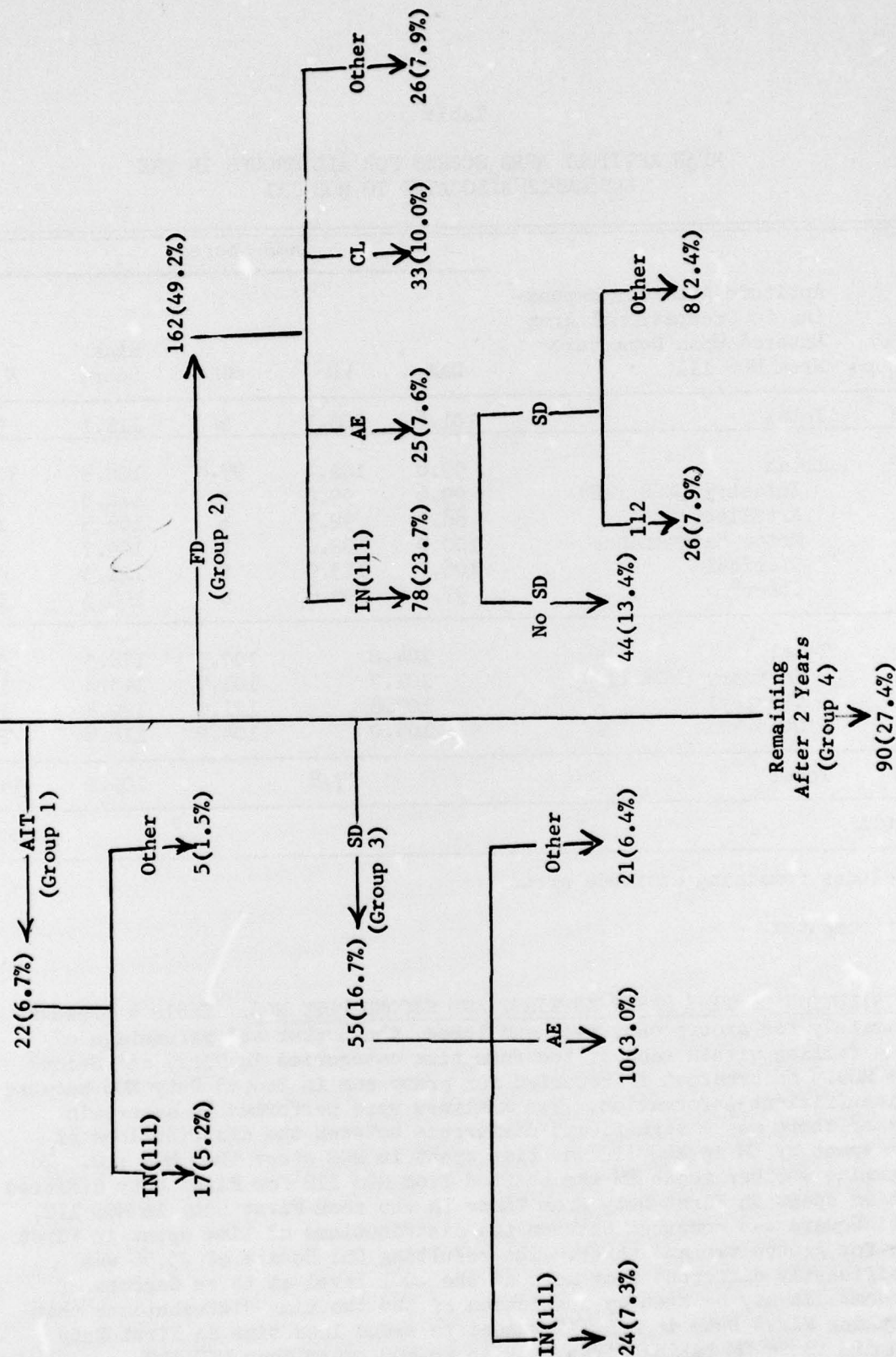


Figure 2. Number and percentage of EM leaving MOS 112 at early service career points.

Table 4

DISTRIBUTION OF TIME SPENT IN FIRST DUTY AND SECOND DUTY BY
EM ALLOCATED TO MOS 112

Groups	GROUPS							
	1		2		3		TOTAL	
	N	%	N	%	N	%	N	%
Time in FD MOS								
1-3 mos	0	---	18	11.1	5	9.1	23	9.6
3-6 mos	1	4.5	33	20.4	15	27.3	49	20.5
6 mos-1 yr	4	18.2	35	21.6	28	50.9	67	28.0
Over 1 yr	17	77.3	76	46.9	7	12.7	100	41.8
Total	22	100.0	162	100.0	55	100.0	239	99.9
Time in SD MOS								
1-3 mos	a	a	9	10.8	7	12.7	16	11.6
3-6 mos			16	19.3	15	27.3	31	22.5
6 mos-1 yr			35	42.2	26	47.3	61	44.2
Over 1 yr			23	27.7	7	12.7	30	21.7
Total			83	100.0	55	100.0	138	100.0

^aInsufficient data to allow analysis.

A second analysis was concerned with whether the same group of EM differed in time spent in MOS 112 vs. time spent in an MOS other than MOS 112. A Chi Square was computed between the First and Second Duty time distributions of group three with the resulting value of .42 being insignificant at three degrees of freedom. This result indicates that EM taking First Duty in MOS 112 spent about the same time in First Duty as they did in a Second Duty MOS (other than MOS 112).

RELATIONSHIPS AMONG MOS SHIFTS AND ACB SCORES. Table 5 contains the average DA allocated, First Duty, Second Duty, and high scores for each of the four groups. Average total DAA score was 95.1 for group one and 99.2 for groups two and three--a relatively small difference among the groups. The average aptitude area score for the MOS entered after leaving MOS 112 was not appreciably higher than that for MOS 112, i.e., for group two, a change from 99.2 to 99.9 and for group three from 99.2 to 100.4. The finding was again true independent of the point in service career when the shift occurred. Of those leaving MOS 112 after AIT (group two), the high aptitude people appeared to be shifting to the Clerical Area (average IN score of 109.5), while the lower aptitude individuals either remained within the Combat areas or shifted to occupational areas other than Clerical. A similar pattern is evidenced for those EM taking First Duty in MOS 112 but entering a different MOS for Second Duty (group three). The higher aptitude individuals entered the Clerical Area (average IN score of 107.1) while the Combat areas were the recipients of lower aptitude people. This finding is corroborated in the average high scores for subgroups within groups two and three, where large differences were found between the average high scores of EM within the Clerical vs Combat areas.

COMPARISON OF FINDINGS FOR MOS 111 AND 112. Comparison of the retention of personnel for MOS 111 and 112, both quantitatively and qualitatively, was made with respect to the extent and patterns of personnel shifts, the distribution of time in First and Second Duty MOS, and the relationships among personnel shifts and ACB scores.

Figures 1 and 2 indicate that 47.6% of the EM allocated to MOS 111 remained in MOS 111 for the period covered by the survey, while correspondingly, only 27.4% of those allocated remained in MOS 112. For MOS 112, a large shift of personnel occurred between AIT and First Duty (49.2%). However, the majority of those leaving MOS 112 remained within the Combat areas, in particular within Infantry (MOS 111) (Figure 2). For MOS 111, a greater shift of personnel outside the Combat areas was evidenced. In sum then, the patterns for MOS 111 and 112 tended to be similar to consider retention of personnel within Infantry rather than within the particular MOS. Whereas MOS 112 showed a lesser percentage of EM retained for the two-year period of the survey, greater retention within the Infantry area of those personnel leaving MOS 112 was exhibited.

The analyses of time spent in First and Second Duty MOS also revealed similarity between MOS 111 and 112. For both MOS, EM taking First Duty in their allocated MOS spent a significantly shorter time in First Duty than did EM taking First Duty outside the MOS to which they were allocated. However, individuals taking First Duty in MOS 111 and Second Duty in a different MOS spent a significantly longer time in their Second Duty MOS, whereas for MOS 112 in a similar analysis no significant difference was found.

Table 5

MEAN APTITUDE AREA SCORES FOR ALL GROUPS IN THE
SUBSAMPLE ALLOCATED TO MOS 112

Group	Aptitude Area Corresponding to Occupational Area Entered Upon Departure From MOS 112	ACB Scores				N
		DAA	FD	SD	High Score	
1	Total	95.1	96.0	b	107.5	22
2	Total	99.2	99.9	102.1	112.9	162
	Infantry (MOS 111)	96.3	96.3	b	109.5	78
	Artillery	99.2	94.9	b	111.7	25
	Clerical	109.5	117.8	b	126.8	33
	Other ^a	94.1	92.9	b	105.8	26
3	Total	99.2		100.4	111.3	55
	Infantry (MOS 111)	97.6		97.6	109.6	24
	Clerical	107.1		115.1	121.9	8
	Artillery	98.9		92.7	106.7	10
	Other ^a	101.4		107.4	115.1	13
4	Total		97.9		108.1	90
TOTAL						329

^aIncludes remaining aptitude areas.

^bNot computed.

The third basis for comparing MOS 111 and 112 relates to the quality of personnel allocated to and remaining within these MOS. It was found that the average DA allocated score (IN) for all EM allocated to MOS 111 was 100.0 while that for EM in MOS 112 was 98.6. Further similarity between the MOS was shown by the pattern of high aptitude personnel shifting to the Clerical Area while the lower aptitude EM remained within the Combat areas.

SUMMARY

1. A sizeable number of the EM originally allocated to the Infantry Area shifted to MOS outside of Infantry during the first two years of their service careers (Table 6). Only 37.1% of the EM remained in the MOS to which they were allocated after approximately two years of their

service careers. The largest shift of personnel occurred between AIT and First Duty (41.4%). A change of MOS at this point in service careers is especially costly to the Army, because no duty time is received by the Army in return for the advanced individual training of personnel. The loss might be tempered somewhat if EM were shifted to MOS in which the skills obtained in AIT would be utilized. (However, of the EM who shifted MOS after AIT, only 37% remained in Infantry where the maximum transfer of skill would be expected, while only a little over a half of the EM--53%--remained within the Combat areas.)

Table 6

NUMBER AND PERCENTAGE OF EM LEAVING INFANTRY
AT EARLY SERVICE CAREER POINTS

Point of Departure	N	%
Advanced Individual Training	31	4.9
First Duty	263	41.4
Second Duty	106	16.7
Remained in Infantry (IN)	236	37.1
Total	636	100.1

2. EM in Infantry MOS for First Duty spent a significantly shorter time in First Duty than did EM with non-Infantry MOS. EM taking First Duty in MOS 112 but shifting to other MOS for Second Duty spent a significantly shorter time in their First Duty MOS.

3. Of those EM initially allocated to Infantry, the lower aptitude individuals tended to remain within Infantry while the higher aptitude people shifted primarily to the Clerical Area. A further computation revealed that the average IN score of all EM initially allocated to the IN Area was 99.1. In a previous study (Boldt, 1962), it has been found that for 5128 EM processed through Replacement Branch in late January of 1962, the average IN score of EM allocated to Infantry was 98, a figure very close to that obtained in the present study. Boldt also reported the average aptitude area scores for individuals allocated to the other occupational areas (Table 7).

Table 7

MEAN SCORES ON SELECTOR APTITUDE AREA

Aptitude Area on Which Selection is Based	Average Score
Infantry (IN)	98
Artillery-Armor-Engineer (AE)	102
Electronics (EL)	112
General Maintenance (GM)	105
Motor Maintenance (MM)	109
Clerical (CL)	114
General Technical (GT)	103

CONCLUSION

Infantry is receiving lower aptitude personnel to begin with. Of these personnel, those with higher aptitude subsequently leave Infantry. Thus Infantry is the repository for lower quality Army personnel.

REFERENCES

Boldt, R. F. Combat allocation and future combat tasks--status report, FY 1962. Research Study 62-6. August 1962.

Boldt, R. F. and Seidman, D. Aptitude distribution in the combat arms. Technical Research Report 1119. April 1960.